Remarks

Claims 1, 3-8 and 26 are pending in the present application from the parent. Claims 27 – 31 have been added to this continuation application.

The specification has been amended to explicitly include a portion of the subject matter of co-assigned United States Patent No. 5,815,106, incorporated by reference.

Independent Claim 1, as amended above, and new independent Claim 27 include the feature that a change in the switching frequency of a radio receiving system audio amplifier is varied by changing the divide ratio between two clock signals driving pulse width modulation circuitry included in that audio amplifier. Independent Claims 1 and 27 also particularly point out that the operating characteristics of the pulse width modulation circuitry also change in response to a change in the divide ratio between the two clock signals.

In the parent application, the Examiner rejected the Claims in view of various combinations of *Kazuhiro* (JP-11332230) (hereinafter "the *Kazuhiro* reference"), *Grant* (EP1130770A2)(hereinafter "the *Grant* reference"), *Colotti* (U.S. Patent No. 5,537,305) (hereinafter the *Colotti* reference"), *Wilcox, et al.* (U.S. Patent No. 4,048,561) (hereinafter "the *Wilcox* reference"), and *Foord, et al.* (U.S. Patent No. 4,868,539) (hereinafter "the *Foord* reference"). Applicant respectfully notes that none of these references, or any combination of these references, teaches or suggests a radio receiver system including a pulse width modulation circuit having operating characteristics controlled by the divide ratio between two clock signals. Applicant makes the following brief remarks with respects to each of these references.

The *Kazuhiro* reference discloses a technique for avoiding reception interference in a receiver by varying the switching frequency of the switched power supply driving the receiver such that the power supply switching frequency does not match the receiving frequency of the receiver. Specifically, the *Kazuhiro* reference discloses a switching power supply 9 whose switching frequency is varied using a voltage controlled crystal oscillator 14 and associated voltage control circuitry 10 for varying the oscillator frequency. The *Kazuhiro* reference teaches neither the use of a pulse width modulator circuit in a switched audio amplifier nor circuitry for varying the divide ratio between two clock signals driving such a pulse width modulation circuit.

The *Grant* reference discloses a low power audio device including a radio receiver 8 and a Class D amplifier 4. The Class D amplifier 4 includes a pulse width modulation circuit

including a saw-tooth or triangle waveform generator and a comparator 22. The pulse width modulation circuitry of the *Grant* reference is not controlled by the divide ratio between two clock signals.

The *Colotti* reference discloses a switching power supply with a variable switching frequency. By varying the power supply switching frequency, interaction between power supply noise and noise in an electronic device powered by that power supply is reduced. The system disclosed in the *Colotti* reference includes a radio frequency analog to digital front end 10 powered by a set of DC to DC power converters 20a- 20b. A clock generator 24 controls an analog to digital converter 18 within front end 10, and which digitizes the input signal, and also provides a signal to a divider 36 which generates a synchronization signal for power converters 20a-20b. This synchronization signal controls the chopper and/or oscillators within power converters 20a-20b such that when an adjustment is made to the clock driving analog to digital converter 18, corresponding adjustments are made to the switching frequencies of power converters 20a- 20b to maintain a minimum interference condition while front end 10 is tuned to the receiving frequency of interest.

The *Colotti* reference does not teach the utilization of a pulse width modulation circuit to adjust the frequency of an audio amplifier. In particular, the *Colotti* reference does not teach a pulse width modulation circuit of which the operating characteristics are varied in response to a change in the divide ratio between two clock signals.

The *Wilcox* reference discloses a radio transceiver unit including a receiver 12 and a transmitter 25. A set of oscillators 41- 43, along with associated banks of crystals 45- 47 and corresponding switches 50a- 50c allow for the transmit and/ or receive frequency to be tuned. The *Wilcox* system operates from a DC power supply 60; however, there is no teaching that DC power supply 60 includes pulse width modulation circuitry of any type, particularly one controlled by the divide ratio between two signals.

The *Foord* reference discloses a system in which audio frequency control signals are transmitted across the lines of an electric power distribution network. The receiver, particularly as shown in FIGURES 15a- 15b of the *Foord* reference, includes a data controlled frequency divider including a phase splitter and a lock-in amplifier. The *Foord* reference does not suggest that such a data controlled frequency divider could be utilized to change a divide ratio between

first and second clock signals and consequently the operating characteristics of a pulse width modulation circuit.

Applicant believes that no further fees are due. However, the Director is Authorized to debit any amounts due by this paper to Deposit Account No. 23-2426 of Winstead Sechrest & Minick P.C.

Applicant respectfully requests that Applicant's attorney be called at the below listed number if it is believed that such a discussion would be helpful in resolving any problems or questions.

Respectfully submitted,
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